

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
 US Department of Commerce
 United States Patent and Trademark
 Office, PCT
 2011 South Clark Place Room
 CP2/5C24
 Arlington, VA 22202
 ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 29 June 2001 (29.06.01)	
International application No. PCT/ZA00/00172	Applicant's or agent's file reference P15900PC00
International filing date (day/month/year) 15 September 2000 (15.09.00)	Priority date (day/month/year) 15 September 1999 (15.09.99)
Applicant VISSER, Barend et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

11 April 2001 (11.04.01)

☐ in a notice effecting later election filed with the International Bureau on:
2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer V. Gross (Fax 338.87.40) Telephone No.: (41-22) 338.83.38
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From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

LE ROUX, Marius
D.M. KISCH INC.
P.O. Box 781218
SANDTON 2146
AFRIQUE DU SUD

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NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT
(PCT Rule 71.1)

Date of mailing
(day/month/year) 13.11.2001

Applicant's or agent's file reference
P15900PC00

IMPORTANT NOTIFICATION

International application No.
PCT/ZA00/00172

International filing date (day/month/year)
15/09/2000

Priority date (day/month/year)
15/09/1999

Applicant
POTCHEFSTROOM UNIVERSITY FOR CHRISTIAN HIGHER E...

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized officer

Röhner, M

Tel. +49 89 2399-2294



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P15900PC00	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/ZA00/00172	International filing date (day/month/year) 15/09/2000	Priority date (day/month/year) 15/09/1999
International Patent Classification (IPC) or national classification and IPC H03F3/60		
Applicant POTCHEFSTROOM UNIVERSITY FOR CHRISTIAN HIGHER E...		



1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 7 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 11/04/2001	Date of completion of this report 13.11.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Agerbaek, T Telephone No. +49 89 2399 8692 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/ZA00/00172

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-9 as originally filed

Claims, No.:

1-11 as received on 23/10/2001 with letter of 19/10/2001

Drawings, sheets:

1/5-5/5 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

2. The application fails to meet the requirements of the PCT because the subject matter of claims 1-9 lacks novelty and/or an inventive step over D1, Art. 33(2) and (3) PCT:
 - 2.1 Note: The last four lines of claim 1 are nonlimiting and have been ignored for the purpose of assessing novelty and inventive step, see point 7 below.
D1 (WO 97 23038 A) discloses a distributed amplifier (see Fig. 1 and section 'System Description', page 6) having an input port 1 and an output port 8. The amplifier consists of an array of amplifier modules 5 parallelly arranged in a honeycomb matrix. The input signal is distributed to the amplifier modules by means of waveguide 100. The output signals from the amplifier modules are picked up and summed by waveguide 110. The amplifier modules are of the kind used in a phased array, where the outputs of the modules combine to form a coherent wavefront, thus in effect having the same propagation delay at the output port 8 of the distributed amplifier.
Claim 1 therefore lacks novelty over D1, Art. 33(2) PCT.
 - 2.2 As seen from D1, Fig.1, the amplifier of D1 has an input port 1 and an output port 8 arranged at opposite ends of the two waveguides 100 and 110, respectively, the parallel amplifier paths mutually evenly spaced and extending between the parallel planes of waveguides 100 and 110. Terminations 2 and 9 are provided opposite the in/out nodes 1 and 8.
Claims 2-4 therefore lack novelty over D1, Art. 33(2) PCT.
 - 2.3 In D1, part of the path between input and output nodes is made up of transmission lines (D1, page 6, last line), as claimed in claim 5.
Claim 5 therefore lacks novelty over D1, Art. 33(2) PCT.
 - 2.4 D1 mentions the use in prior art distributed amplifiers of coaxial lines and/or striplines for combining the signals from the amplifiers (D1, page 2, 1st

paragraph). On page 8 of D1, striplines and other types of combiners are mentioned as suitable combiners.

The skilled person, faced with making a distributed amplifier according to D1, would select the most suitable medium given the signal frequencies to be amplified and would, without exercising an inventive step, use a coaxial line or a stripline whenever such a medium seemed most advantageous.

Claims 6 and 7 therefore lack an inventive step over D1, Art. 33(3) PCT.

- 2.6 It is common knowledge that waveguides such as those (100/110) used in the input and outputs of D1 must necessarily be made of conductive layers (or they wouldn't work, at least not at microwave frequencies or lower).

Claim 8 therefore lacks novelty over D1, Art. 33(2) PCT.

- 2.7 As seen from D1, Fig. 1, the input and output waveguides 100/110 form (three-dimensional) cavities comprising terminators 2/9, which absorb signal energy.

Claim 9 therefore lacks novelty over D1, Art. 33(2) PCT.

3. The application fails to meet the requirements of the PCT because the subject matter of claims 1-3 lacks novelty, Art. 33(2) PCT:

Each of documents D2-4 directly discloses, as readily seen from Fig. 1 of each of D2-4, a distributed amplifier having all of the features of claims 1-3.

Claims 1-3 therefore lack novelty over each of D2-4, Art. 33(2) PCT.

4. D4 uses strip lines (D4, col. 2, l. 9-14, 31-34, 64-65).

Claim 7 therefore lacks novelty over D4, Art. 33(2) PCT.

5. The application fails to meet the requirements of the PCT because the subject matter of claims 10 and 11 lacks novelty, Art. 33(2) PCT:

D3, which anticipates the amplifier of claims 1-3, further mentions, in col. 2, l. 59-65, that the spacing between the stages can be $(1+m) \cdot \lambda/4$, m integer.

Although D3 states this in connection with oscillator stages, it is implicit that this spacing can also be used with the amplifiers stages of D3.

Claim 11 does not define any limiting features, because of lack of clarity, see point 7.

Claims 10 and 11 therefore lack novelty over D3, Art. 33(2) PCT.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/ZA00/00172

6. The application meets the requirements of the PCT with respect to industrial applicability, Art. 33(4) PCT, because the subject matter of claims 1-11 can be made or used in industry.

Re Item VIII

Certain observations on the international application

7. The application fails to meet the requirements of the PCT because the subject matter of claims 1 and 11 lacks clarity, Art. 6 PCT:
- claim 1 attempts to define the amplifier arrangement in terms of a non-specified external signal. As this signal is indefinite, claim 5 is nonlimiting.
 - claim 11 attempts to define subject matter in terms of the result to be achieved, which in the present case is not allowable, because it would seem possible to define the subject matter in more concrete terms, and because - even if a more concrete definition had not been possible - the disclosure does not provide an example of or directions on how to make a signal propagate in one direction and noise in another direction, predominantly, thus not further limiting the method defined in claim 10.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/ZA00/00172

Re Item I

Basis of the report

The examination is being carried out on the **following application documents**:

Text for the Contracting States:

AT BE CH DE DK ES FI FR GB GR IT IE LI LU MC NL PT SE

Description, pages:

1-9 as originally filed

Claims, No.:

1-11 as received on 23/10/2001 with letter of 19/10/2001

Drawings, sheets:

1/5-5/5 as originally filed

1. Reference is made to the following documents:

D1: WO 97 23038 A (BOEING CO) 26 June 1997

D2: US-A-4 311 966 (BERT ALAIN ET AL) 19 January 1982

D3: US-A-4 092 616 (OSTERWALDER JOHANN MARTIN) 30 May 1978

D4: GB-A-1 235 472 (TEXAS INSTRUMENTS LTD) 16 June 1971.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/ZA00/00172

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	6
	No:	Claims	1-5, 7-11
Inventive step (IS)	Yes:	Claims	none
	No:	Claims	1-11
Industrial applicability (IA)	Yes:	Claims	1-11
	No:	Claims	none

2. Citations and explanations
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P15900PC00	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/ZA 00/ 00172	International filing date (day/month/year) 15/09/2000	(Earliest) Priority Date (day/month/year) 15/09/1999
Applicant POTCHEFSTROOM UNIVERSITY FOR CHRISTIAN HIGHER E...		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

3

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/ZA 00/00172

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H03F3/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H03F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 092 616 A (OSTERWALDER JOHANN MARTIN) 30 May 1978 (1978-05-30) the whole document	1-6, 10-12
X	US 4 311 966 A (BERT ALAIN ET AL) 19 January 1982 (1982-01-19) column 2, line 48 -column 6, line 6; figures 1-4	1-3,8
A	US 4 973 918 A (SCHINDLER MANFRED J) 27 November 1990 (1990-11-27) column 2, line 17 -column 4, line 56; figure 1	1-6, 10-12
A	US 5 060 298 A (KUMAR MAHESH ET AL) 22 October 1991 (1991-10-22) column 4, line 49 - line 50; figures 1,3	7
	-/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

24 November 2000

Date of mailing of the international search report

05/12/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Tyberghien, G

INTERNATIONAL SEARCH REPORT

International Application No

PCT/ZA 00/00172

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 1 235 472 A (TEXAS INSTRUMENTS LTD) 16 June 1971 (1971-06-16) page 2; figure 1	8,9
A	WO 97 23038 A (BOEING CO) 26 June 1997 (1997-06-26) abstract; figure 1	10

INTERNATIONAL SEARCH REPORT

Information on patent family members

Internat. J. Application No

PCT/ZA 00/00172

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 4092616	A	30-05-1978	NONE		
US 4311966	A	19-01-1982	FR	2443765 A	04-07-1980
			DE	2962648 D	09-06-1982
			EP	0012093 A	11-06-1980
			JP	1429651 C	09-03-1988
			JP	55079511 A	16-06-1980
			JP	62039565 B	24-08-1987
US 4973918	A	27-11-1990	NONE		
US 5060298	A	22-10-1991	NONE		
GB 1235472	A	16-06-1971	GB	1235473 A	16-06-1971
WO 9723038	A	26-06-1997	US	5663683 A	02-09-1997
			AU	1683097 A	14-07-1997